Protecting our environment

Creative thinking and cooperative efforts help us work with nature, soften pesticide impact.

New prescription for endangered species

In January 2005, DPR rolled out a new online tool that gives pesticide users and County Agricultural Commissioners customized information to protect California's nearly 300 endangered and threatened species. The online system is dubbed "PRESCRIBE," for Pesticide Regulation Endangered Species Custom Real-time Internet Bulletin Engine.

Until PRESCRIBE went online, Agricultural Commissioners and pesticide users had to extract information from DPR's printed county endangered species bulletins. An average of 44 pages for each county (more than 2,500 pages in all), they are a good reference manual but are so detailed and comprehensive, it is difficult to figure out if an endangered species is in your specific area, and if the pesticide you want to apply is a problem for it. PRESCRIBE, on the other hand, generates a one-or two-page report that is customized to the needs of each pesticide user. That is, it covers only the locations and pesticides that are relevant to a particular user. And users don't need to know the name of the active ingredient in the product they are using – they can look up it up by any of 30,000 trade names.

PRESCRIBE's use limitations are the same as those that appear in the paper bulletins but are delivered in a highly distilled form, providing the user with only the instructions that are relevant to the locations where the pesticide will be used – and only for the pesticide that will actually be used. These custom instructions are brief enough to be attached to restricted material permits, written recommendations, sales receipts, and work orders. The ease of use and reliability of these custom reports will greatly simplify and thereby enhance regulatory compliance while saving time and distribution costs.

Protecting surface water

The federal Clean Water Act requires states to develop total maximum daily loads (TMDLs) for water bodies that do not meet water quality standards. In California, this is the responsibility of the State Water Resources Control Board and the nine Regional Water Quality Control Boards. The Boards have listed 148 water bodies (ranging from bays and large rivers to small creeks) as impaired by currently registered pesticides from both agricultural and urban sources.

DPR works cooperatively with the Regional Water Boards as they develop TMDLs for pesticides and associated plans to reduce contamination. These collaborative efforts are aimed at producing TMDL plans which harmonize DPR and Regional Board programs so that water quality goals can be met while using public resources as efficiently as possible.

Two organophosphate pesticides – chlorpyrifos and diazinon – have been especially problematic. They are detected at potentially harmful levels in water bodies throughout the state, in particular in Central Valley rivers and streams where agricultural uses are the principal source of the residues. DPR in 2003 and 2004 placed both pesticides in reevaluation. With this action, makers of the two pesticides must submit data identifying how the pesticides get into water bodies at problematic levels and develop measures to reduce or eliminate the problem.

DPR also continues to fund University of California research to quantify how vegetated buffer strips may reduce diazinon runoff into surface waters. In 2003 and 2004, we also conducted our own studies of runoff after summer irrigation and after winter rains (many tree crops are treated in the dormant season).

As DPR imposes restrictions on diazinon and chlorpyrifos, growers are turning to other dormant-season insecticides, which may in turn cause problems. DPR is working on rules to reduce problems from runoff and from drift that may be caused by any dormant spray. Regulations we plan to propose in 2005 would prohibit application of these pesticides within 100 feet of an irrigation ditch, drainage canal, or water body that drains into a river or tributary.

Protecting ground water

In 2004, advancing an environmental initiative that began nearly 20 years ago, DPR adopted new regulations that changed its approach from an after-the-fact response to pesticide finds in ground water to proactively requiring preventive practices in areas of potential contamination.

Under the former approach, once pesticides were detected in ground water, their use would be prohibited unless future contamination could be controlled. The regulatory program was based on limited mitigation measures and applied only to the one-square-mile "pesticide management zones" around contaminated wells. Those zones included about 313,000 acres statewide.

The new regulations designate about 2.4 million acres across the state where soil conditions make shallow ground water most vulnerable to pesticide contamination from leaching and runoff. The regulations prescribe actions designed to prevent pesticides from reaching ground water in these "ground water protection areas" before contamination occurs.

DPR scientists made new rules possible when they developed computer modeling that identified vulnerable areas of the state. The model was constructed using almost 20 years of well monitoring data compiled by DPR, combining it with soil data and climate information from other sources. DPR's computer modeling can relate factors – including farming practices and soil conditions – to the use of soil-applied herbicides that most often threaten ground water.

While developing the new regulations, DPR worked with industry to raise awareness of ground water concerns and prevention methods. For example, since the fall of 2001, DPR has held 81 training sessions in 28 counties as part of a "chemigation road show" to help the agricultural industry prevent ground water contamination. Chemigation is an effective way to apply pesticides and fertilizers through irrigation systems, but safeguards are needed to prevent treated irrigation water from flowing back into wells.